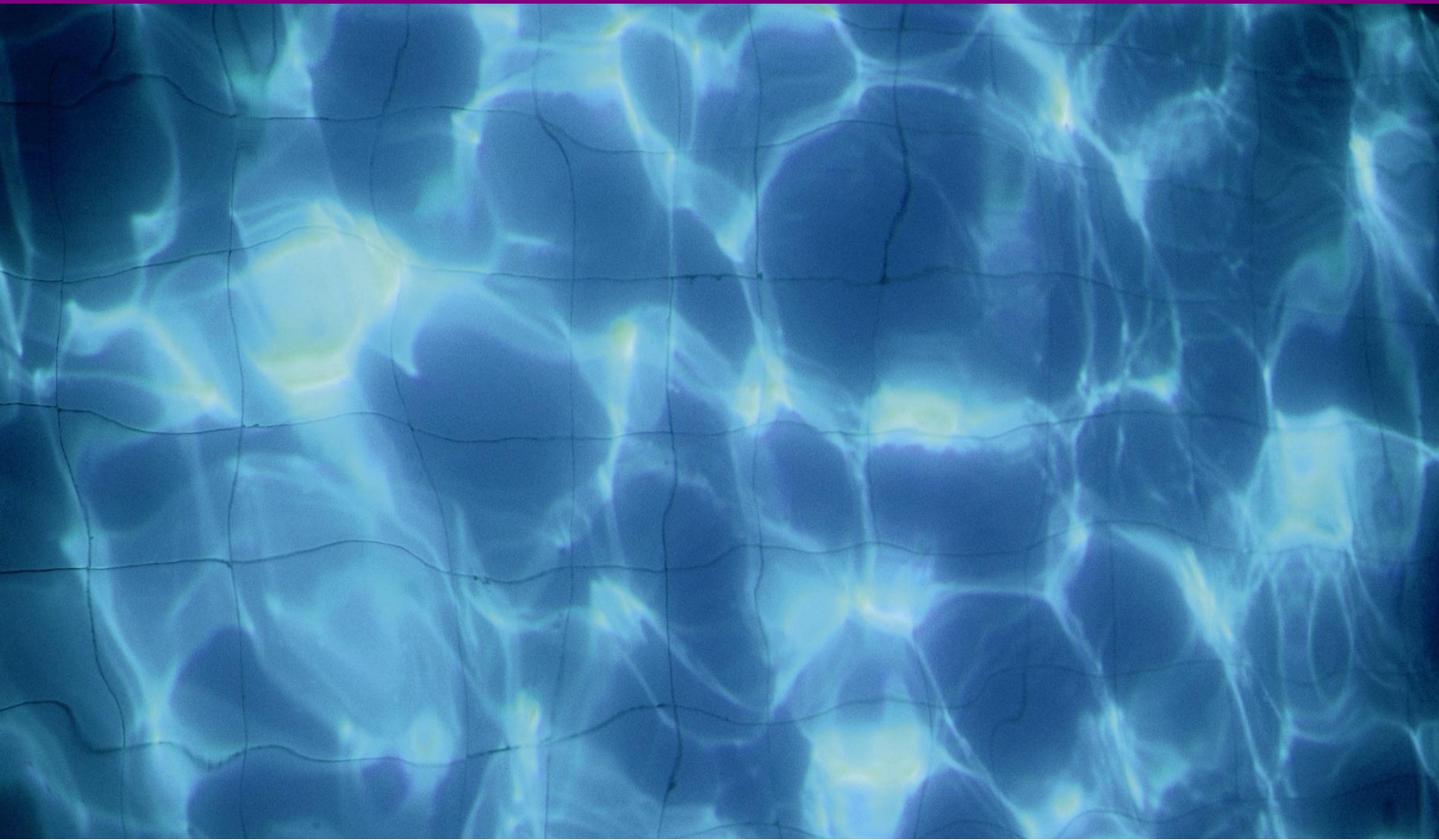




FP-9c/CC-2Mc

colour panel

user manual

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I System Overview

This manual describes the function of the CC-2Mc colour panel (FP-9c). The CC-2Mc colour panel is designed to provide a simple, intuitive method of controlling the CC-2Mc colour correction system. It gives individual, colour coded control of R, G, and B Gain, lifts and Gamma thus enabling the user to make full use of the colour correction.

This unit come in two different styles:

1. The CC-2Mc, Multi-definition unit, capable of SD and HD operation.
2. The CC-2Sc, Standard definition unit, capable of SD operation only.

Within this manual it can be assumed that references to the CC-2 refer to both styles of processing card. When there are differences it will be pointed out specifically. This manual must be used in conjunction with the etherbox manual which contains much of the generic information common to all eyeheight geNETics products.

I.I The CC-2 Product

The CC-2 is a colour corrector. The system will accept either 270Mbit SMPTE 259 (SDI, CC-2Sc and CC-2Mc) or 1485Mbit SMPTE 292 (HDI, CC-2MC only) signals. This system enables up to 6 channels of colour correction in a 1RU chassis. This CC-2 is designed specifically to work in conjunction with the etherBox chassis (FB-9E).

The main features are –

- Simple individual control of RGB gain, lift and master gamma.
- One dual Colour Corrected output and one Monitoring output.
- Full 10 bit processing.
- Simple individual control of RGB gain, lift and master gamma.
- Overall luma, chroma gain and black level adjustment.
- Overall hue correction.
- Indicate output put shows legaliser “clipped” areas with individual R,G, and B indicators or adjustable wipe between original and colour corrected output for immediate comparison.
- Gamut legalization as standard with EBU R103-2000 set up mode.
- Adjustable legalisation levels.
- Highly effective luma overshoot and undershoot suppression.
- EDH/CRC re-insertion.
- 6 user memories.
- FULLY software and firmware updatable using Flash technology.

- LI-2DS has a mechanical relay bypass option available.
- On-Board simple text based RS232 automation protocol. Compatible with eyeheight geNETics automation protocol.
- Web Based Control Panel

2 Installation

2.1 Connecting the FP-9c to CC-2Mc

The FP-9c can either be installed on the front of the chassis (FB-9e) or it can be remotely connected by a cable.

If the FP-9c is connected on the front of the chassis then this will have already been fitted before delivery and so no customer installation will be required.

If the FP-9c is to be remotely fitted then follow the instructions in the section '2.2 Remote Panels' of 'FB-9E_etherBox_user_manual' on our website -

http://www.eyeheight.com/manuals/systemHardware/FB-9E_etherBox_user_manual.pdf

2.2 Associated Equipment for the CC-2Mc control panel

The colour control panel can control one selected CC-2Mc from up to sixteen (16) CC-2Mc colour correctors connected on the I-Bus. It will only find, and work with the CC-2Mc or CC-2Sc, it will not find or work with non-CP of colour correctors.

2.3 Video Connections on the CC-2 Module

This unit requires HDI or SDI digital video connections to the BNC connectors. Optionally RS232 may also be connected normally using CAT5e cable. The user should refer to the etherbox user manual for installation of the CC-2 into a chassis and connection of flexipanel. This will also describe the process of acquiring a processing card (in this case the CC-2) by the Flexipanel which is necessary to access the menu structure within the CC-2.

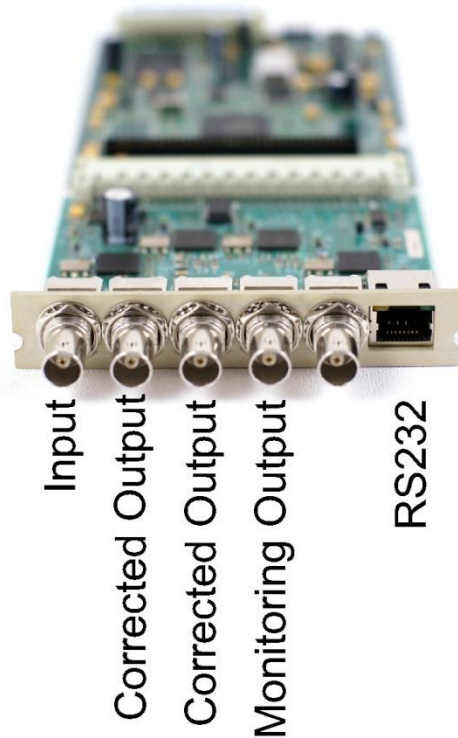


Figure 1 - CC-2 connections

The main video connections to the CC-2 are shown above. The Corrected Output has two identical output connections; the Monitoring Output channel has one output. The RS232 connection pin-outs are shown in the technical appendix at the end of this manual.

3 Control Panel

Figure 2 shows the CC-2Mc colour control panel.

1 – Gain Button

Pressing this button selects the Red, Green, Blue and Luma Gain menus.

2 – Lift Button

Pressing this button selects the Red, Green Blue Grade lift and Luma lift menus.

3 - Gamma Button

Pressing this button selects the Red, Green , Blue and Master Gamma menus.

4 – Utilities Button

Pressing this button selects the top level of the Utility menus.

5 – Memories

Pressing this button selects the Memory menus. Repeatedly depressing this button steps through the Memory menus.

6 – Setup

Pressing this button puts the panel into Setup mode. Press the “EXIT” menu button to exit back to the last selected menu set.

7 – R Control

Turning this alters the value selected in the “R” menu window. Pressing it in will reset the current value to the default value

8 – G Control

Turning this alters the value selected in the “G” menu window. Pressing it in will reset the current value to the default value

9 – B Control

Turning this alters the value selected in the “B” menu window. Pressing it in will reset the current value to the default value

10 – M Control

Turning this alters the value selected in the “Master” menu window. Pressing it in will reset the current value to the default value

11 – R, G, B and Master Menus

These display the Red, Green, Blue and Master values. Pressing these menu buttons when the Utilities menus or Memory menus are displayed selects the displayed action. When the Gain, Lift or Gamma menus are displayed, pressing these menu buttons will alter the displayed value in the same way as turning the R, G, B or Master controls.

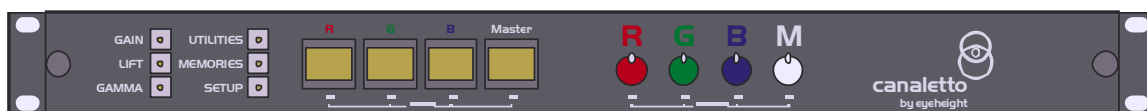


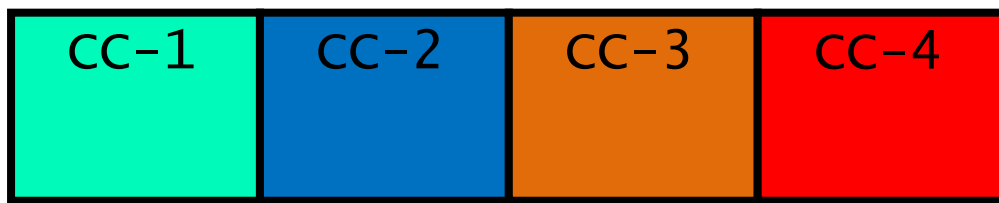
Figure 2 - Colour Control Panel

4 Operation

4.1 CC-2Mc colour control panel set-up menus

Pressing the Setup Button will select the Setup menus.

Pressing Setup **again at ANY point** will take you back to the operation of your currently selected colour corrector.

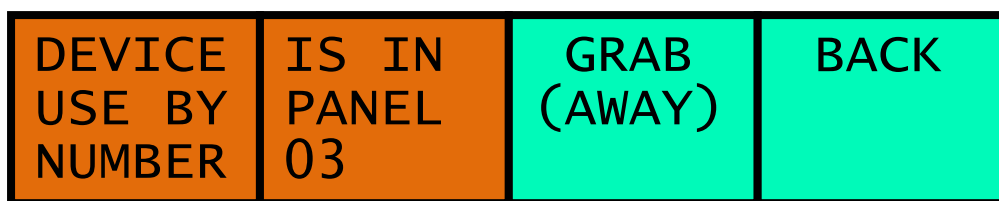


The above is a possible representation of what will be displayed when the SET-UP button is first pressed. The user is invited to press buttons CC-1 to CC-4. These will select the appropriate colour corrector 1→4. The Colour of the button has a very specific meaning. These are the possibilities:

GREEN - This means that colour corrector number 1 (CC-1) is selected currently to THIS panel. Pressing SET-UP or THIS button will return to operating this colour corrector. If the user Presses AND KEEPS PRESSED a green button (like CC-1) then the button will turn BLUE. This indicates that the user has now freed the colour corrector for use at another panel.

BLUE - This means that this colour corrector is currently FREE and available for acquisition by this panel. Pressing this button in the above situation will change from the operation of CC-1 to CC-2.

ORANGE - This means that this colour corrector (CC-3) is currently in use by another panel. You can still press this and you will be invited to choose the following options:



The user may grab the colour corrector away from the previous user. The previous user will then LOSE control of their colour corrector and will need to acquire a new one using SET-UP.

RED - This means that this colour corrector (CC-4) does not exist and cannot be acquired.

FURTHER COLOUR CORRECTORS - By rotating the “**R**” rotary control, further colour correctors can be accessed. Up to 16 can be accessed this way. Unless you have a large multi channel Canaletto system, most of these will be unavailable, (red).

CC-5	CC-6	CC-7	CC-8
CC-9	CC-10	CC-11	CC-12
CC-13	CC-14	CC-15	CC-16

FURTHER MAINTAINANCE UTILITIES - By rotating the “**R**” rotary control one step further takes the user to the maintenance facilities. These are as follows:

SYSTEM CONFIG AREA	MAINT- AIN CC SYSTEM	MAINT- AIN PANELS	SOFT'W VERS
--------------------------	----------------------------	-------------------------	----------------

MAINTAIN CC SYSTEM – Pressing this LCD button will begin a system scan which will search for all the colour correctors connected to your system. Typically this will come up with the following:

FOUND !	CC-1	NEXT CC	BACK
---------	------	------------	------

Meaning that CC-1 has been found. You may then, **Rotate the “G” control** to change this colour corrector channel number from 1→16. This may turn **RED**, if there is already a colour corrector with this channel number. While this unit is found, **the LED on the front of the colour corrector evolution chassis will flash Orange**. This identifies the chassis that the panel has found.

NOTE: If the colour correction units are **CC-2cp** units these are not capable of being re-allocated to different CC numbers. These units are automatically allocated as follows:

If the units are in Box #1 (chassis #1) then:

Slot1 = CC-1

Slot2 = CC-2

Slot3 = CC-3

Slot4 = CC-4

Slot5 = CC-5

Slot6 = CC-6

If the units are in Box #2 (chassis #2) then:

Slot1 = CC-7

Slot2 = CC-8

Slot3 = CC-9

Slot4 = CC-10

Slot5 = CC-11

Slot6 = CC-12

If the units are in Box #3 (chassis #3) then:

Slot1 = CC-13

Slot2 = CC-14

Slot3 = CC-15

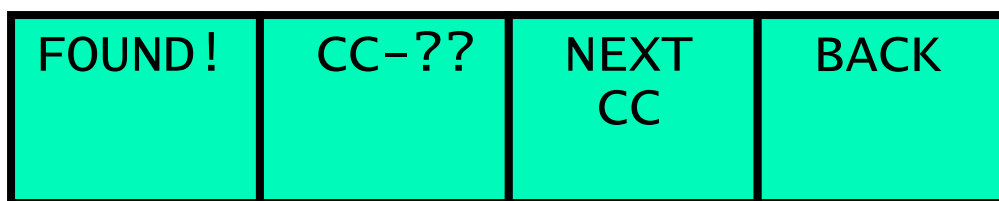
Slot4 = CC-16

You cannot change the allocation except by physically moving the card into a different slot in the chassis.

NEXT – Pressing this will look for the next available colour corrector, and so on.

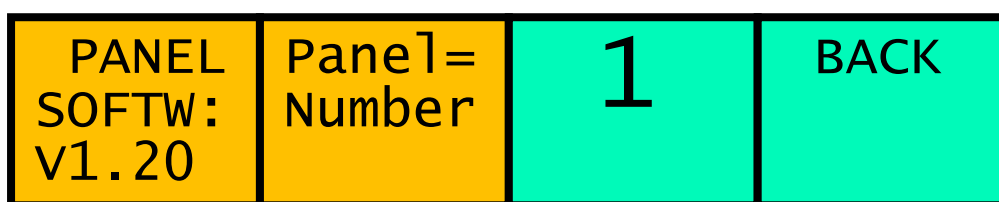
BACK – Pressing this will take you back to the system configuration area menu.

NOTE FOR NEW COLOUR CORRECTORS – New colour correctors may be delivered as CC-16 or in some cases may be “hidden” initially. If the CC is “hidden” then keep pressing “NEXT CC” until the “hidden” unit is found. Initially it will display the following:



After which it will display the unit as CC-9. The user is then invited to change this number as appropriate using the “**G**” rotary control.

MAINTAIN PANELS – Pressing this button will display the following:



The user is then invited to change this panel number as appropriate using the “**B**” rotary control. The panel software version is also found in the first LCD window.

IMPORTANT NOTE – NO TWO PANELS MAY HAVE THE SAME PANEL NUMBER.

BACK – Pressing this will take you back to the system configuration area menu.

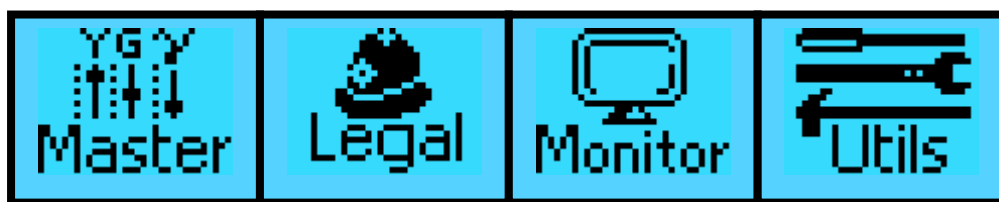
SOFTWARE VERSIONS – Pressing this will return all the software and firmware versions of the currently selected colour corrector. You may be asked for this if you have any issues with the unit.

4.2 Web Control of the CC-2

If the CC-2 is installed in the etherbox it is possible to control the CC-2 primary functions from a web based java applet. Please refer to the etherbox manual for instructions on how to set up the system to do this.

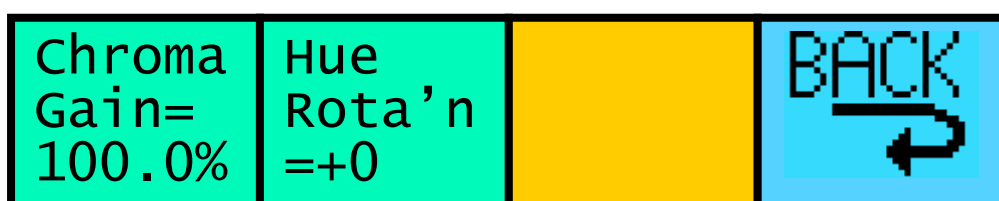
4.3 Operational Menus

Menus 00-03 Top Level Menus



Menu Num.	Heading	Function
0	Master	Pressing this button will select the Chroma control menu. (Go To Menu 4).
1	Legal	Pressing this button will select the Individual Legaliser control menu. (Go To Menu 8).
2	Monitor	Pressing this button will select the Monitor Control menu. (Go To Menu 68).
3	Utils	Pressing this button will select the Software and Reset Control Menus. (Go To Menu 60).

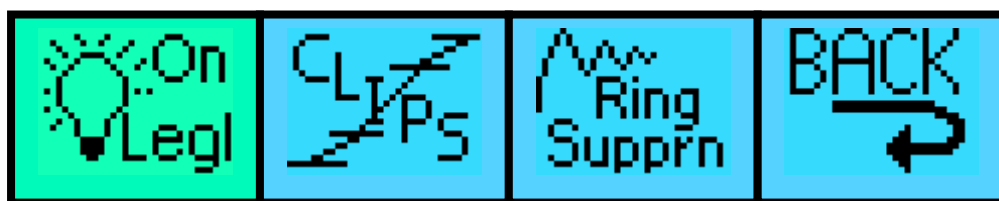
Menus 04-07 Chroma control menu



Menu Num.	Heading	Function
4	Chroma Gain (0 to 199.7%)	This option sets the Chroma gain.
5	Hue Rota'n (-180 to +180)	This option sets the Hue rotation.

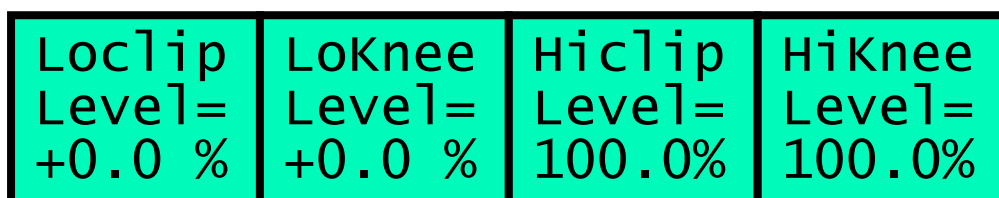
6		None
7	Back	Pressing this button will take the user back to the Top Level Menus

Menus 08-11 Legaliser control menu



Menu Num.	Heading	Function
8	Legalr	Pressing this will turn the legaliser on or off.
9	CLIP menu	Pressing this button will select the Low and High clip control menu. (Go To Menu 12).
10	RING menu	Pressing this button will select the Ring suppression control menu. (Go To Menu 16).
11	Back	Top Level Menus

Menus 12-15 Low and High clip control menu



Menu Num.	Heading	Function
12	LoClip Level - 7.1 to +50.8%	This option sets the level of the low clip point.
13	LoKnee Level - 7.1 to +50.8%	This option sets the level of the low knee point.
14	HiClip Level 50.9 to	This option sets the level of the high clip point.

	109%	
15	HiKnee Level 50.9 to 109%	This option sets the level of the high knee point.

Menus 16-19 Ring suppression control menu

Ring Supr'n =OFF	LoRing Thresh +0.0 %	HiRing Thresh 100.0%	BACK 
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Menu Num.	Heading	Function
16	Ring Supr'n	Pressing this will select the mode of the ring suppression, off, automatic or manual.
17	LoRing Threshold -6.8 to +51.2%	This option sets the level of the low ring threshold point.
18	HiRing Threshold 50.9% to 109%	This option sets the level of the high ring threshold point.
19	Back	Pressing this button will take the user back to the Legaliser control menu. (Go To Menu 8).

Menus 24-27 Grade gain control menu

1.00 Gain	1.00 Gain	1.00 Gain	100.0% Y Gain
--------------	--------------	--------------	------------------

Menu Num.	Heading	Function
24	Red Gain 0 to 16	This option sets the Red gain.
25	Green	This option sets the Green gain.

	Gain 0 to 16	
26	Blue Gain 0 to 16	This option sets the Blue gain.
27	Luma Gain (0 → 199.7%)	This option sets the Luma gain.

Menus 28-31 Grade Offset control menu

+0 offset	+0 offset	+0 offset	+0.0 I Y Lift
--------------	--------------	--------------	------------------

Menu Num.	Heading	Function
28	Red Offset -512 to +511	This option sets the Red offset.
29	Green Offset -512 to +511	This option sets the Green offset.
30	Blue Offset -512 to +511	This option sets the Blue offset.
31	Black Lift (-29 → 28.9)	This option sets the black lift

Menus 32-35 Gamma Value menu

1.000 Gamma	1.000 Gamma	1.000 Gamma	1.000 Gamma
----------------	----------------	----------------	----------------

Menu Num.	Automation	Function
32	0x28→0x1fff	This option sets the Red Gamma.
33	0x28→0x1fff	This option sets the Green Gamma.
34	0x28→0x1fff	This option sets the Blue Gamma.
35	0x28→0x1fff	This option sets the Overall Gamma.

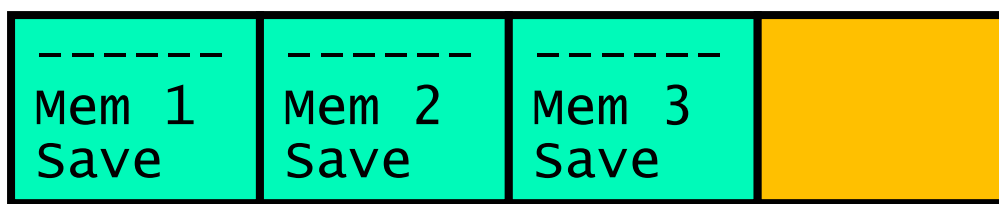
Menus 36-71 Memories

----- Mem 1 Recall	----- Mem 2 Recall	----- Mem 3 Recall	
--------------------------	--------------------------	--------------------------	--

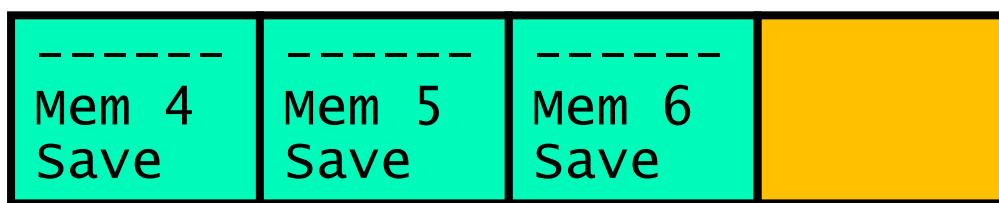
Menu Num.	Heading	Function
36	MEM1	Pressing this will recall Memory number 1. User Names can be programmed in to the memories using a keyboard. See “geNETics User guide”, section “Giving product Memories names”
37	MEM2	Pressing this will recall Memory number 2.
38	MEM3	Pressing this will recall Memory number 3.
39	Blank	

----- Mem 4 Recall	----- Mem 5 Recall	----- Mem 6 Recall	
--------------------------	--------------------------	--------------------------	--

Menu Num.	Heading	Function
40	MEM4	Pressing this will recall Memory number 4.
41	MEM5	Pressing this will recall Memory number 5.
42	MEM6	Pressing this will recall Memory number 6.
43	Blank	

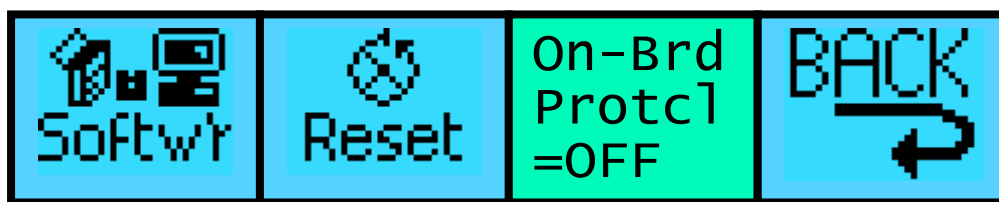


Menu Num.	Heading	Function
44	SAVE MEM1	Pressing this will Save Memory number 1.
45	SAVE MEM2	Pressing this will Save Memory number 2.
46	SAVE MEM3	Pressing this will Save Memory number 3.
47	Blank	



Menu Num.	Heading	Function
48	SAVE MEM4	Pressing this will Save Memory number 4.
49	SAVE MEM5	Pressing this will Save Memory number 5.
50	SAVE MEM6	Pressing this will Save Memory number 6.
51	Blank	

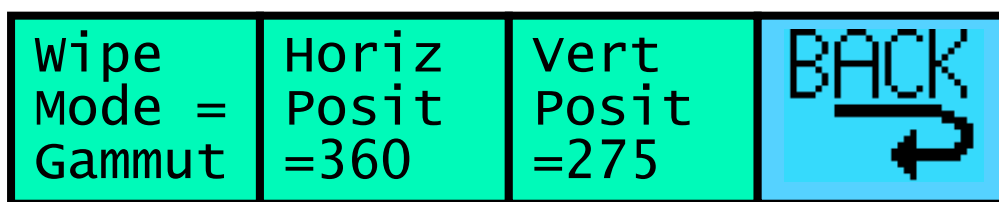
Menu 60-63: Software and Reset Control Menus



Menu Num.	Heading	Function
60	Software	Pressing this will select the software menus. [Menus 36]

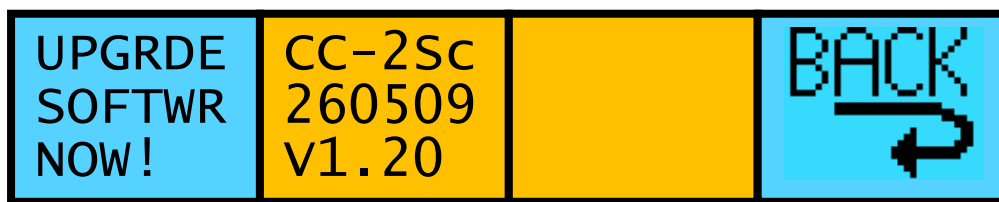
61	Reset	Pressing this will select the Reset and Power On Reset menus. [Menus 40]
68	On-Board Protocol	Two options are: OFF RS232
63	Back	Pressing this button will take the user back to the Top Level Menus

Menus 68-71 Monitor Control menu

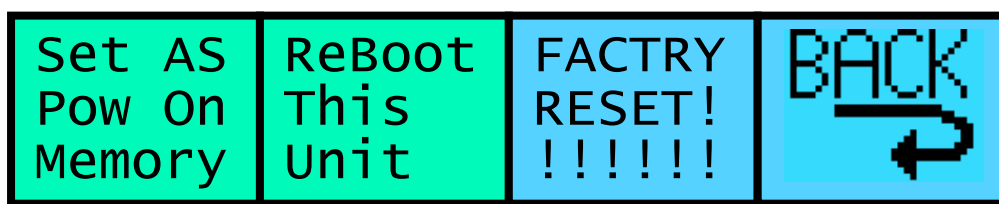


Menu Num.	Heading	Function
68	Wipe Mode	Legaliser indicate out or wiped output consists of nine options which are: Gammut Wipe H Wipe V WipeHV HV Inv Test H Test V TestHV T HVIn (Test HV Invert)
69	SD 000→720 HD 000→1920	Horizontal Position of wipe
70	SD 000→576 HD 000→1080	Vertical Position of wipe
71	Back	Pressing this button will take the user back to the Top Level Menus

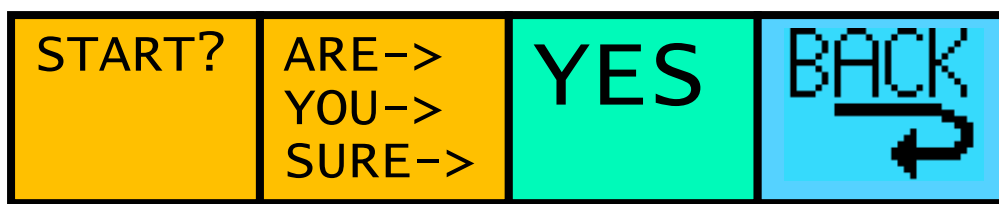
Menus 72-75 Software Upgrade



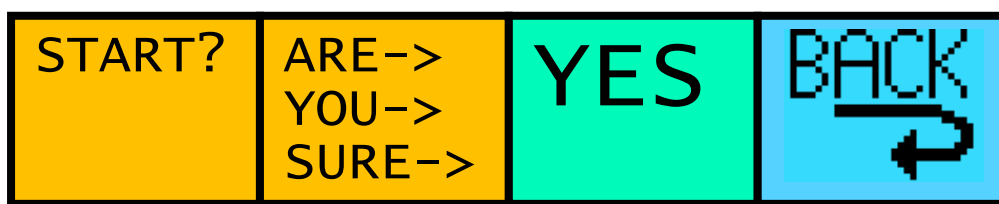
Menu Num.	Heading	Function
72	Upgrade Software	Pressing this will take you to the Software Upgrade last chance menu. (Go To Menu 84).
73	Software Version	
74	Blank	
75	BACK	Pressing this button will take the user back to the Software and Reset Control Menus. (Go To Menu 60).



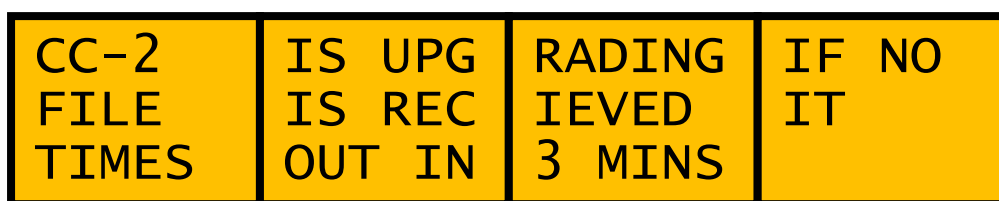
Menu Num.	Heading	Function
76	Set as Power on Memory	Pressing this will set the current settings as the default settings when the unit is powered up. This only applies to menus whose menu number is in RED .
77	Reboot this unit	This applies a warm restart to the unit. It is the software equivalent of recycling the power.
78	Factory Reset	Pressing this will take you to the Factory Reset Last Chance menu. (Go To Menu 100).
79	BACK	Go To the Software and Reset Control Menus. (Go To Menu 60).



Menu Num.	Heading	Function
80	----	----
81	----	----
82	YES, I want to do a factory reset!	This will Start a factory Reset of the unit. This will Wipe ALL Logos and Settings that may have been previously set-up. Only do this if you are setting up from scratch, or there is a problem with your unit.
83	BACK	Go To the Resets and Software Upgrade. (Go To Menu 60).



Menu Num.	Heading	Function
84	----	----
85	----	----
86	YES, I want to start a software upgrade	This will Start a software upgrade of the unit. You will need to follow the instructions in the etherbox (FB-9E) manual to correctly perform this procedure. This will Wipe ALL settings back to default levels. The unit MUST be installed in an FB-9E to perform an upgrade.
87	BACK	Go To the Software Upgrade. (Go To Menu 72).



Menu Num.	Heading	Function
88	----	This is a system message. If you accidentally press “Software Upgrade” then this message appears. If you have done this accidentally, simply WAIT 3 minutes and the system will return back to normal.
89	----	----
90	----	----
91	----	----

5 Technical Appendix

5.1 GPI/Tally/RS232 technical information

The Processor card has an RJ-45 connector with RS232 connections as shown below:

1	Not Used	White/Orange
2	Not Used	Orange
3	Not Used	White/Green
4	GND	Blue
5	RS232 TX	White/Blue
6	RS232 RX	Green
7	Not Used	White/Brown
8	Not Used)	Brown

Table 1 RS232 pin-out on RJ-45.

5.1.1 RS232 Interface

This loosely follows the pin convention of EIA-561 which is a standard for RS232 on an RJ45 cable. Only TX, RX and Signal ground (pin 4) are implemented. For the CC-2 the following RS232 parameters apply:

- 115Kbaud
- 8 Bits, no parity
- 1 Stop bit.

5.2 On-Board automation protocol

5.2.1 Implementation on RS232

A simple text based protocol has been implemented on the RS232 interface. To activate the protocol select RS232 on Menu 68 (On-Board Protocol select). All text strings are shown in inverted commas; do not include them in the actual command sent. Each byte within a text string must be sent within 10mS of each other or the command will time out. This on-board protocol is not the same as the geNETics protocol. Refer to the geNETics protocol in section 6 (Product Automation) of the etherbox manual. GeNETics protocol is used to control a number of processor cards using one connection.

The command set is as follows:

Command	Meaning	Example hex string
"Mnn"	(M)emory, nn is the memory/preset number	4D,30,31 Select User Memory 01. The number represents the following: M01→M06=User Memories 1→6. (See Menus 52 to 67)

A response will occur within 100mS of the command. The responses are as follows:

Response	Meaning	Hex string
"OK"	Command was understood and will implement.	4F,4B
"E0"	Command timed out.	45,30
"E1"	Error 1. Unknown command.	45,31
"E2"	Error 2. Next Logo number is not in range.	45,32
"E3"	Error 3. Logo has been asked to fade down when it is down already, or up when it is up already	45,33

5.3 geNETics Automation Protocol Parameter table.

This is the automatically extracted parameters for the CC-2. This is used for the generic geNETics automation protocol. See etherbox manual for a full description of its usage.

5.3.1 Values for SD

Menu	Access	Text	Low	Up	Level	Txt1	Txt2	Txt3	Txt4	Txt5	Txt6	Txt7	Txt8	Txt9
0	N/A	[Gr]	N/A	N/A	A									
1	N/A	[Gr]	N/A	N/A	A									
2	N/A	[Gr]	N/A	N/A	A									
3	N/A	[Gr]	N/A	N/A	A									
4	R/	{Chroma}{Gain	0	511	A									

	W	=}{# %}												
5	R/ W	{Hue {Rota'n}{=# '}	65024	511	A									
6	N/A	{ }{ }{ }	N/A	N/A	A									
7	N/A	[Gr]	N/A	N/A	A									
8	R/ W	{# }	0	1	A	[Gr]	[Gr]							
9	N/A	[Gr]	N/A	N/A	A									
10	N/A	[Gr]	N/A	N/A	A									
11	N/A	[Gr]	N/A	N/A	A									
12	R/ W	{LoClip}{Level= {# %}	1	511	A									
13	R/ W	{LoKnee}{Level= }{# %}	1	511	A									
14	R/ W	{HiClip}{Level= {# %}	512	1022	A									
15	R/ W	{HiKnee}{Level= }{# %}	512	1023	A									
16	R/ W	{ Ring {Supr'n}{# }	0	2	A	=OF F	=AU TO	=MA N'						
17	R/ W	{LoRing}{Thres h}{# %}	0	511	A									
18	R/ W	{HiRing}{Thres h}{# %}	512	1023	A									
19	N/A	[Gr]	N/A	N/A	A									
20	RD	{# }	0	3	A	SAFE	SAFE	DIGT AL	ANA LOG					
20	RD	{# }	0	3	B	ACTI ON	CAP T'N	EDG E	EDG E					

20	R/ W	{# }	0	1	C	OFF	ON							
21	R/ W	{# }	0	3	A	[S.Ac t	[S.Ca p	[D.E dg	[A.E dg					
21	R/ W	{# }	0	4	B	[4:3	[16: 9	16p4 :3	16p1 49	4 3 p 1 4 9				
21	R/ W	{# }	0	3	C	[Thi n	[Thic k	[Sha de	[Blac k					
22	N/A	{ { } { }	N/A	N/A	A									
23	N/A	{ { } { }	N/A	N/A	A									
24	R/ W	{# }	0	4096	A									
25	R/ W	{# }	0	4096	A									
26	R/ W	{# }	0	4096	A									
27	R/ W	{# %}	0	511	A									
28	R/ W	{# }	65024	511	A									
29	R/ W	{# }	65024	511	A									
30	R/ W	{# }	65024	511	A									
31	R/ W	{# l}	65280	255	A									
32	R/ W	{# }	40	8191	A									

33	R/ W	{# }	40	8191	A									
34	R/ W	{# }	40	8191	A									
35	R/ W	{# }	64	8191	A									
36	R/ W	{%>H }{Mem 1}{# }	0	1	A	Reca II	DON E							
37	R/ W	{%>N }{Mem 2}{# }	0	1	A	Reca II	DON E							
38	R/ W	{%>T }{Mem 3}{# }	0	1	A	Reca II	DON E							
39	N/A	{ }{ }{ }	N/A	N/A	A									
40	R/ W	{%>Z }{Mem 4}{# }	0	1	A	Reca II	DON E							
41	R/ W	{%>` }{Mem 5}{# }	0	1	A	Reca II	DON E							
42	R/ W	{%>f }{Mem 6}{# }	0	1	A	Reca II	DON E							
43	N/A	{ }{ }{ }	N/A	N/A	A									
44	R/ W	{%>H }{Mem 1}{# }	0	1	A	Save	DON E							
45	R/ W	{%>N }{Mem 2}{# }	0	1	A	Save	DON E							
46	R/ W	{%>T }{Mem 3}{# }	0	1	A	Save	DON E							
47	N/A	{ }{ }{ }	N/A	N/A	A									
48	R/ W	{%>Z }{Mem 4}{# }	0	1	A	Save	DON E							
49	R/ W	{%>` }{Mem 5}{# }	0	1	A	Save	DON							

	W						E							
50	R/ W	{%>f }{Mem 6 }{# }	0	1	A	Save	DON E							
51	N/A	{ }{ }{ }	N/A	N/A	A									
52	N/A	[Gr]	N/A	N/A	A									
53	N/A	[Gr]	N/A	N/A	A									
54	N/A	[Gr]	N/A	N/A	A									
55	N/A	[Gr]	N/A	N/A	A									
56	N/A	[Gr]	N/A	N/A	A									
57	N/A	[Gr]	N/A	N/A	A									
58	N/A	[Gr]	N/A	N/A	A									
59	N/A	[Gr]	N/A	N/A	A									
60	N/A	[Gr]	N/A	N/A	A									
61	N/A	[Gr]	N/A	N/A	A									
62	R/ W	{On- Brd}{Protcl}{# }	0	1	A	=OF F	=RS2 32							
63	N/A	[Gr]	N/A	N/A	A									
64	N/A	{ }{ }{ }	N/A	N/A	A									
65	N/A	{ }{ }{ }	N/A	N/A	A									
66	R/ W	{Gamma }{Range=}{# }	0	1	A	Full	Fixe d							
67	R/ W	{Gamma }{Mode= }{# }	0	1	A	Mas ter	RGB sep							
68	R/ W	{Wipe }{Mode =}{# }	0	8	A	Gam mut	Wip e H	Wip e V	Wip eHV	H V In v	T e st H	T e st H	T e st H	T H V I

												V	V	n
69	R/ W	{Horiz }{Posit }{=# }	0	720	A									
70	R/ W	{Vert }{Posit }{=# }	0	576	A									
71	N/A	[Gr]	N/A	N/A	A									
72	N/A	{UPGRDE}{SOF TWR}{ NOW! }	N/A	N/A	A									
73	N/A	{! }{ }	N/A	N/A	A									
74	N/A	{ }{ }{ }	N/A	N/A	A									
75	N/A	[Gr]	N/A	N/A	A									
76	R/ W	{# }	0	1	A	Set As	!WAI T!							
77	R/ W	{# }	0	1	A	ReB oot	!WAI T!							
78	N/A	{FACTRY}{RESE T!}{!!!!!!}	N/A	N/A	A									
79	N/A	[Gr]	N/A	N/A	A									
80	N/A	{START?}{ }	N/A	N/A	A									
81	N/A	{ ARE]}{ YOU]}{SURE?}}	N/A	N/A	A									
82	R/ W	{# }	0	1	A	YES	OK!							
83	N/A	[Gr]	N/A	N/A	A									
84	N/A	{START?}{ }	N/A	N/A	A									
85	N/A	{ ARE]}{ YOU]}{SURE?}}	N/A	N/A	A									
86	R/ W	{# }	0	1	A	YES								

87	N/A	[Gr]	N/A	N/A	A									
88	N/A	{CC-2 }{FILE {TIMES }	N/A	N/A	A									
89	N/A	{IS UPG}{IS REC}{OUT IN}	N/A	N/A	A									
90	N/A	{RADING}{IEVE D }{3 MINS}	N/A	N/A	A									
91	N/A	{IF NO }{IT }{ }	N/A	N/A	A									

5.3.2 Differences for HD

Me nu	Acc ess	Text	Low	Up	L e v	Txt 1	Txt 2	Txt 3	Txt 4	Txt 5	T xt 6	T xt 7	T x t 8	T xt 9	Tx t1 0
36	R/ W	{% >H }{Mem 13}{# }	0	1	A	Re call	DO NE								
37	R/ W	{% >N }{Mem 14}{# }	0	1	A	Re call	DO NE								
38	R/ W	{% >T }{Mem 15}{# }	0	1	A	Re call	DO NE								
39	N/A	{ }{ }{ }	N/A	N/A	A										
40	R/ W	{% >Z }{Mem 16}{# }	0	1	A	Re call	DO NE								
41	R/ W	{% >` }{Mem 17}{# }	0	1	A	Re call	DO NE								
42	R/ W	{% >f }{Mem 18}{# }	0	1	A	Re call	DO NE								
43	N/A	{ }{ }{ }	N/A	N/A	A										
44	R/ W	{% >H }{Mem 13}{# }	0	1	A	Sav e	DO NE								
45	R/ W	{% >N }{Mem 14}{# }	0	1	A	Sav e	DO NE								

46	R/ W	{% >T }{Mem 15}{# }	0	1	A	Sav e	DO NE										
47	N/A	{ }{ }{ }	N/A	N/A	A												
48	R/ W	{% >Z }{Mem 16}{# }	0	1	A	Sav e	DO NE										
49	R/ W	{% >` }{Mem 17}{# }	0	1	A	Sav e	DO NE										
50	R/ W	{% >f }{Mem 18}{# }	0	1	A	Sav e	DO NE										
69	R/ W	{Horiz }{Posit }{=# }	0	1920	A												
70	R/ W	{Vert }{Posit }{=# }	0	1080	A												

5.4 Technical Specification

When in SDI mode:

SDI Inputs (270 Mbps, 800mV p-p±10% into 75Ω)	1 Input to SMPTE 259M Input
SDI Outputs (270 Mbps, 800mV p-p±10% into 75Ω)	3 Outputs to SMPTE 259M Out1, Out 2, Monitor Out
SDI cable equalisation	At least 200m of PSF 1/3 Return loss better than 18dB, 5 MHz – 270 Mhz

When in HD-SDI mode:

HD-SDI Inputs (1.845 Gbps, 800mV p-p±10% into 75Ω)	1 Input to SMPTE 292M Input
HD-SDI Outputs (1.485 Gbps, 800mV p-p±10% into 75Ω)	3 Outputs to SMPTE 292M Out1, Out 2, Monitor Out
HD-SDI cable equalisation	At least 100m of Belden 1694A

General:

Ancillary Data	Passes all ancillary data in vertical and horizontal blanking except for CRC recalculation.
Control Surfaces	Option of local or remote FP-9 control panel.
Chassis	FB-9E etherBox 1U enclosure
Supported Formats	720x576/50i 720x487/60i 720x507/60i 1280x720/23.98p 1280x720/24p 1280x720/25p 1280x720/29.97p 1280x720/30p 1280x720/50p 1280x720/59.94p 1280x720/60p 1920x1080/23.98p 1920x1080/23.98psf 1920x1080/24p 1920x1080/24psf 1920x1080/25p 1920x1080/50i 1920x1080/29.97p 1920x1080/59.94i 1920x1080/30p 1920x1080/60i
Delay	<10us
Power Supply	100-240v AC. Less than 50W power consumption with 6 CC-2M units installed.
FB-9E Dimension	Width 442mm Height 44mm Depth 300mm
Weight	<3Kg
Temperature	<25°C ambient, <55°C internal
Humidity	Recommended 40 to 55% Limits 20 to 80%